

REMARKS

In the Office Action dated January 2, 2009, the Examiner objected to the specification for incorporating essential material by reference to a foreign patent document; rejected claims 1-12, 14, 16-19, and 22 under 35 U.S.C. § 112, second paragraph, as being indefinite; and rejected claims 1-12, 14, 16-19, and 22 under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent Publication 2001/0021764 to Weisse et al. ("*Weisse*") with additional evidences from U.S. Patent No. 5,980,795 to Klotzer et al. ("*Klotzer*"), U.S. Patent No. 6,620,356 to Wong et al. ("*Wong*"), and U.S. Patent No. 5,422,377 to Aubert ("*Aubert*").

By this Reply Applicant has amended claim 1. Claims 1-12, 14, 16-19, and 22 are currently pending in this application. No new matter is presented by this Reply.

Applicant thanks the Examiner for the interview of May 1, 2009 with Applicant's representative. During the interview, Applicant's representative distinguished between the claimed foaming process, and the phase-inversion precipitation process disclosed in *Wong*. The Examiner acknowledged that the lack of solvent residues could be a patentable distinction of the claimed invention over the prior art, but requested that Applicant provide evidence of these arguments. Applicant also submitted that *Klotzer* was an unrelated, non-analogous prior art reference, however, the Examiner disagreed. Finally, Applicant's representative and the Examiner discussed the claim's recitation of using polymers having glass transition temperatures within 150° C of one another.

In the Office Action, the Examiner objected to the specification for incorporating essential material by reference to a foreign patent document. Applicant has amended the specification to recite U.S. Patent No. 7,306,754, which is the U.S. equivalent of DE-

A10 033 401. As stated in 37 CFR § 1.57(c), "[e]ssential material' may be incorporated by reference . . . by way of an incorporation by reference to a U.S. patent or U.S. patent application publication." Applicant's amendment has rendered this objection moot and Applicant requests that the Examiner withdraw the objection.

The Examiner rejected claims 1-12, 14, 16-19, and 22 under 35 U.S.C. § 112, second paragraph, as being indefinite. Specifically, the Examiner contended that the limitation that the "glass transition temperature of the components of the polymer blends are not more different than 150°C" is indefinite. (Office Action at 2.) Applicant has amended the claim to recite "the glass transition temperature of the components of the polymer blend are within 150°C of one another," as assumed by the Examiner for purposes of examination. Accordingly, Applicant requests that the Examiner withdraw the § 112 rejection.

Claims 1-12, 14, 16-19, and 22 were rejected under 35 U.S.C. § 103(a) as being unpatentable over *Weisse* with additional evidences from *Klotzer*, *Wong*, and *Aubert*. Applicant respectfully traverses the Examiner's rejection.

The Examiner relied on *Weisse* for its alleged disclosure of, for example, "a porous membrane made from block co-polymer of sulfonated polysulfone." (Office Action at 4.) The Examiner argues that *Weisse* discloses "blends of polysulfone polymers with PVP as known in the art." (Office Action at 4.) However, the foaming process of claim 1 is not disclosed or suggested by *Weisse*. Rather, *Weisse* discloses "a process for the preparation of block copolymers containing blocks of unsulfonated aromatic polyether sulfones and blocks of aromatic polyether sulfones sulfonated on the aromatics, which is characterized in that the block copolymers are prepared by the

polycondensation of divalent, hydroxylated and/or halogenated, ether and sulfone groups-containing aromatic compounds as coreactants, one of which coreactants additionally is sulfonated on the aromatic ring or the aromatic rings." (*Weisse*, ¶ [0041].)

In the Office Action the Examiner refers to *Klotzer*, *Wong*, and *Aubert* "for additional evidences," however, it is unclear from the Office Action whether the Examiner is using these references as a basis for the Section 103 rejection. In the event that the Examiner is attempting to use the references as a basis for the rejection, the rejection is deficient at least because the Office Action does not explicitly provide a rationale as to why it would have been obvious to combine the teachings of the respective references. As stated in the M.P.E.P., "[t]he key to supporting any rejection under 35 U.S.C. 103 is the clear articulation of the reason(s) why the claimed invention would have been obvious . . . [and] rejections on obviousness cannot be sustained by mere conclusory statements." M.P.E.P. § 2141. The Office Action simply provides a brief discussion of the teachings of the references, but does not provide an explicit rationale as to why one of ordinary skill in the art at the time of the invention would have combined each reference with *Weisse* to achieve the claimed invention.

When discussing the references, the Examiner alleges that *Wong* discloses "a porous membrane made from blends or block co-polymers of hydrophobic and hydrophilic components by the method of foaming using a foaming gas." (Office Action at 5.) However, *Wong* does not disclose or suggest the claimed foaming process. Rather, *Wong* discloses a method for producing "open-pore polymeric matrices prepared via gas induced phase inversions." (Abstract.) As discussed in the interview with the Examiner, phase-inversion precipitation methods necessarily result in solvent

residues within the membrane, whereas foaming methods do not require the use of solvents. Membranes formed by the claimed foaming process would therefore have different structural features from those made using phase-inversion precipitation methods. During the interview, the Examiner acknowledged that the lack of solvent residues could be a patentable distinction of the claimed invention over the prior art, but requested that Applicant provide additional evidence. Accordingly, Applicant submits the publication "Basic Principles of Membrane Technology," by Marcel Mulder ("*Mulder*") in an information disclosure statement filed with this Reply.

Mulder discusses the phase inversion process, and specifically, discloses the use of solvents in connection with all of the disclosed techniques, such as precipitation by solvent evaporation, precipitation from the vapour phase, precipitation by controlled evaporation, thermal precipitation, and immersion precipitation. (See *Mulder* pages 76 and 77.) Applicant also refers the Examiner to *Wong* for evidence that phase-inversion precipitation methods necessarily result in solvent residues. *Wong* discloses "removing residual solvent preferably via lyophilization." (Col 3, lines 11-12.) *Wong* also admits that, "[t]here would, however, still be some solvent remaining in the pores and in the bulk of the material." (Col. 7, lines 37-45) Therefore, for at least these reasons, *Wong* does not remedy the deficiencies of *Weisse* discussed above.

The Examiner also refers to *Klotzer* for its alleged disclosure of "process limitations for making the membrane." (Office Action at 5.) Applicant submits, however, that one of ordinary skill in the art would not use *Klotzer* to achieve the claimed invention at least because the claimed invention is directed to a specific and distinct type of membrane. *Klotzer* is generically directed to "hollow fiber membranes."

(Abstract.) However, as recited in claim 1, the claimed membrane specifically includes at least one hydrophilic polymer and at least one hydrophobic polymer, wherein the glass transition temperature of the components of the polymer blend are within 150°C of one another. Furthermore, the claimed membrane includes a homogeneous hydrophilic polymer blend having a hydrophilicity that allows spontaneous wetting of the membrane surface with blood, plasma, or other aqueous solutions. This hydrophilicity and wettability of the claimed membrane eliminates the need for a hydrophilic coating, as required by prior art membranes, which can readily wear off. Rather, this characteristic of the claimed membrane is an integral property to the membrane surface, which results from the polymer blend utilized and the process with which the claimed membrane is made. *Klotzer* does not disclose or suggest these features. Accordingly, Applicant submits that the claimed invention is directed to a specific type of membrane and one of ordinary skill in the art would not look to the teachings of *Klotzer* to achieve a membrane according to the claimed invention.

Regarding *Aubert*, the Examiner alleges that *Aubert* discloses "a process of making [a] membrane by using a foaming gas, and customizing membrane morphology and density." (Office Action at 5.) *Aubert*, however, discloses the use of a phase separation process that utilizes solvents during processing. (See, e.g., col. 1, lines 12-28.) As previously noted, foaming methods do not require the use of solvents. Therefore, for at least this reason, *Aubert* does not remedy the deficiencies of *Weisse* discussed above.

Thus, for at least the aforementioned reasons, Applicant requests that the Examiner withdraw the § 103 rejection of independent claim 1. Additionally, Applicant

requests that the Examiner also withdraw the rejection of claims 2-12, 14, 16-19, and 22 at least to their dependence from independent claim 1 and due to their additional recitations of patentable subject matter.

In view of the foregoing amendments and remarks, Applicant respectfully requests reconsideration and reexamination of this application and the timely allowance of the pending claims.

Please grant any extensions of time required to enter this response and charge any additional required fees to our deposit account 06-0916.

Respectfully submitted,

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Dated: July 1, 2009

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